Im Auftrag der Dozenten der Fakultät Physik
Der Dekan

Einladender: Prof. Dr. Dieter Suter

KOLLOQUIUM PHYSIK

Thema
Optical pumping of nuclear spins in diamond and GaAs

Vortragender
Prof. Jeffrey Reimer
UC Berkeley

Ort
Hörsaalgebäude II
Hörsaal 2

Zeit
16:30 Uhr

Kolloquiums-Kaffee ab 16:00 Uhr
im Raum P2-E0-414
(Alle sind herzlich eingeladen)
Optical pumping of nuclear spins in diamond and GaAs

Prof. Jeffrey Reimer
University of California Berkeley

Control of electron spins in semiconductors impacts the design and analysis of both solid-state quantum computation and spintronics devices; surprisingly, it also affords the opportunity to produce huge signals for analytical NMR and MRI. I will review several examples of control and preparation of nuclear spin angular momentum that work towards these ends, then focus on two examples: GaAs and diamond. In GaAs we have achieved optical and electrical control of nuclear polarization, including re-writable micron-scale patterns of nuclear polarization that involves no lithography, chemistry, or magnetic field gradients. The [NV-] center in diamond, however, presents puzzling phenomenology when optically pumped at high field (~7T).

